

REMARKS

Claims 15-28 are pending in this application. By this Amendment, claims 15, 17, 24 and 27 are amended to correct various informalities and for clarity. Support for the amendments can be found, for example, in the specification (see specification, page 15, lines 2-4). No new matter is added.

In view of the foregoing amendments and the following remarks, reconsideration and allowance are respectfully requested.

I. Allowable Subject Matter

The Office Action, at page 8, indicates that claims 26 and 27 recite allowable subject matter. Specifically, these claims are indicated as allowable if rewritten in independent form to include all of the features of the base claim and any intervening claims. Applicants appreciate this indication of allowability, but respectfully submit that at least claim 15, from which these claims depend, and the other claims depending from claim 15 are allowable for at least the reasons presented below.

II. Rejections Under 35 U.S.C. §103

The Office Action rejects claims 15-21 under 35 U.S.C. §103(a) over U.S. Patent Application Publication No. 2003/0180604 to Zenger et al. (“Zenger”) in view of U.S. Patent No. 6,524,737 to Tanii et al. (“Tanii”) with evidentiary reference to U.S. Patent Application Publication No. 2004/0013732 to Farber et al. (“Farber”); rejects claims 15 and 20 under 35 U.S.C. §103(a) over Zenger in view of JP 10-046266 to Iiri et al. (“Iiri”); rejects claims 15, 18-21 and 23-25 under 35 U.S.C. §103(a) over Zenger in view of FR 2827710 to Tedjar (“Tedjar”); rejects claim 22 under 35 U.S.C. §103(a) over Zenger in view of Tanii or Tedjar and further in view of U.S. Patent No. 2,548,037 to Leonard et al. (“Leonard”); rejects claim 25 under 35 U.S.C. §103(a) over Zenger in view of Tedjar and further in view of U.S. Patent

Application Publication No. 2003/0134199 to Christian et al. (“Christian”); and rejects claim 28 under 35 U.S.C. §103(a) over Zenger in view of Tanii or Iiri and further in view of JP 10-287864 to Watanabe et al. (“Watanabe”). Applicants respectfully traverse the rejections. For at least the following reasons, Applicants respectfully assert that Zenger, Tanii, Farber, Iiri and Tedjar, as applied in the Office Action, would not have rendered obvious each and every feature of claim 15.

First, as acknowledged by the Office Action, Zenger, Tanii, Farber, Iiri and Tedjar fail to disclose each and every feature of claim 15 (Office Action, pages 3-5). More specifically, the Office Action concedes that each of the applied references fail to disclose a method for hydrometallurgical treatment of cells and batteries comprising, *inter alia*, treatment by a magnetic separation and densimetric table followed by aqueous hydrolysis, as recited in claim 15.

Instead: (1) Zenger fails to disclose use of magnetic separation; (2) Tanii discloses use of a magnetic separation process separating fragments into “ferrous portions” and “whatever is left behind;” (3) Iiri discloses use of a magnetic separation profess to separate “magnetic and non-magnetic material with a magnet;” and (4) Tedjar discloses use of “magnetic sorting in order to separate the ferrous metals from the metals nonferrous” (*see* Tanii, col. 17, lines 39-43 and 63-65; Iiri, paragraph [0016]; and Tedjar, p. 2, Description of the improvement brought; Office Action, page 3).

Based on the above, none of the applied references disclose treatment by magnetic separation and densimetric table, but instead they each disclose only the use of a magnetic separation process to separate ferrous portions from non-ferrous portions or, put differently, to separate magnetic materials from non-magnetic materials.

Second, densimetric table separation, as recited in claim 15, has nothing to do with magnetic separation, particle size classification or sieve separation. Rather, densimetric table

separation depends on the difference in density between the various components. Density, or mass per unit volume, is not the same measuring unit as size and, thus, the two units are not identical or interchangeable. It is quite possible to have two identically-sized objects having widely varying densities, i.e. a cement block compared to a Styrofoam block. Therefore, classification based on size such a sieve separation would not differentiate identically sized objects. (See e.g. http://www.urbar.com/en/aplicaciones/e_mesas_densimetricas.htm).

Accordingly, Applicants' method is distinguishable at least by separating products having similar sizes but different densities so that the following four fractions can be obtained in a single run: (1) the undersized fine fraction that is rich in metal oxides and carbon; (2) the magnetic fraction comprised of stainless steel from the casings of cells and batteries; (3) the dense non-magnetic fraction comprised of non-ferrous metals; and (4) the non-magnetic fraction having a low density comprised of a mixture of paper and plastic, as recited in claim 20 (see specification, p. 7, lines 16-26). Unlike the applied references, Applicants' method does not require use of multiple magnetic treatments or multiple separation processes, sieving processes, and the like in order to accomplish the separation of the above four fractions in a single run (*see* Tedjar, page 2; Iiri, paragraph [0022]; and Tanii, col. 19, lines 1-19).

Further, Applicants respectfully assert that neither the applied references nor the Office Action provide any reason or rationale for one of ordinary skill in the art to have modified the disclosure of Zenger, Tanii, Farber, Iiri and Tedjar without the benefit of Applicants' specification. In particular, the alleged modification of Zenger, Tanii, Farber, Iiri and Tedjar would not have been obvious because one of ordinary skill in the art would not have been apprised that applying a magnetic separation and densimetric table followed by an aqueous hydrolysis can or should be employed in a method for hydrometallurgical treatment of cells and batteries, as recited in claim 15, based on the disclosure of Zenger, Farber, Tanii, Iiri and Tedjar (*see also* specification, p. 3, lines 24-31).

The Office Action asserts that because Tanii, Iiri and Tedjar allegedly disclose “separation into magnetic and non-magnetic sections,” it would allegedly have been obvious to a person of ordinary skill in the art to “(sieve) at any mesh size to enable classification based on distinct particle sizes … (or) perform sieving at any mesh size to enable classification based on distinct particle sizes” (Office Action, pages 3-4). However, Applicants assert that sieving at any mesh size is not a sufficient motivation, reason or rationale to have modified the references to have included densimetric table and furthermore is a mischaracterization of the nature of the densimetric table recited in Applicants’ claim 15, as described above. More specifically, regardless of how much one varies the size of sieving, whether to be “300 microns” as disclosed in Tanii, or small enough to “only let metal components pass … due to the fact the lithium cobalt molecules are so small” (*see* Office Action, page 3), varying the mesh size will never be able accomplish the same function as a densimetric table and, in particular, the method of claim 15, for at least the reason that size and density are simply not equivalent, interchangeable or dependent measurements in the manner suggested by the Office Action.

In view of the foregoing, it would not have been obvious to a person having ordinary skill in the art to have modified Zenger, Tanii, Farber, Iiri and Tedjar in the manner suggested by the Office Action to provide a magnetic separation and densimetric table followed by an aqueous hydrolysis in a method for hydrometallurgical treatment of cells and batteries, at least because: (a) the applied references each fail to disclose densimetric table separation; and (b) varying mesh size, as asserted by the Office Action, is insufficient as a motivation, reason, or rationale to modify the references to have included densimetric table separation without benefit of Applicants’ specification (*see* Office Action, pages 3-5).

The Office Action applies Leonard, Christian and Watanabe as allegedly addressing additional features recited in dependent claims 22, 25 and 28 and, thus, does not cure the

deficiencies of Zenger, Tanii, Farber, Iiri or Tedjar with respect to claim 15 (Office Action, pages 6-7). Rather, Leonard, Christian and Watanabe are silent with regard to use of a physical treatment using at least magnetic separation and densimetric table followed by aqueous hydrolysis.

Accordingly, it would not have been obvious to one of ordinary skill in the art to have modified Zenger, Tanii, Farber, Iiri, Tedjar, Leonard, Christian or Watanabe without the benefit of Applicants' specification, at least because the references cannot reasonably be considered to have rendered obvious all of the positively recited features of claim 15.

Thus, the applied references, as applied in the Office Action, would not have rendered claim 15 obvious. The remaining claims variously depend from claim 15 and likewise would not have been rendered obvious.

Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



William P. Berridge
Registration No. 30,024

Sarah Lhymn
Registration No. 65,041

WPB:SQL/scg

Attachments:

Replacement Sheet for Fig. 3
Petition for Extension of Time

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OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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